* KQ tomorrow *

What type of Quadrilateral is it???

Name: _____

I. Determine whether the following statements are ALWAYS true, SOMETIMES true, or NEVER true.

1. A square is a parallelogram. always
2. A kite has all congruent sides. Never
3. A trapezoid is an isosceles trapezoid. Alt. sometimes
4. A rectangle is a rhombus. sometimes
5. A rhombus has opposite sides congruent. always
6. A square has four 90° angles. always
7. A parallelogram can be called a square. sometimes
8. A rhombus has perpendicular lines. sometimes
9. A rectangle is a parallelogram. always
10. A square is a kite. Never
11. A parallelogram has all sides congruent. sometimes
12. A quadrilateral with opposite sides congruent and opposite sides parallel is best called a parallelogram. always
13. A parallelogram with all sides congruent is best called a rhombus. always

* This is classwork. If you do not finish, then it is HW!!!

II. Given the following information identify what quadrilaterals the shape can be called AND then identify the BEST/MOST SPECIFIC name for it.

14. Quadrilateral ABCD

	Distance	Slope
$\overline{AB}$	$\sqrt{18}$	$\frac{1}{2}$
$\overline{BC}$	$\sqrt{13}$	$-\frac{2}{3}$
$\overline{CD}$	$\sqrt{18}$	$\frac{1}{2}$
$\overline{AD}$	$\sqrt{13}$	$-\frac{2}{3}$

ALL names it can be called:
Parallelogram

BEST Name to call it:
Parallelogram

Names it CAN NOT be called:
Rectangle, Square, rhombus
Trapezoid, Kite

* Answers will be posted on Ms. Blasioli's website this afternoon!! Check your work. QUIZ TOMORROW!!

15. Quadrilateral MATH

	Distance	Slope
$\overline{MA}$	$\sqrt{125}$	$\frac{2}{3}$
$\overline{AT}$	$\sqrt{125}$	$-\frac{2}{3}$
$\overline{TH}$	10	$\frac{1}{5}$
$\overline{MH}$	10	$-\frac{1}{5}$

ALL names it can be called:

Kite

BEST Name to call it:

Kite

Names it CAN NOT be called.

Parallelogram,
Rhombus
Rectangle
Trapezoid
Square

16. Quadrilateral ABCD

	Distance	Slope
$\overline{AB}$	$\sqrt{18}$	$\frac{1}{2}$
$\overline{BC}$	$\sqrt{18}$	$-\frac{2}{3}$
$\overline{CD}$	$\sqrt{18}$	$\frac{1}{2}$
$\overline{AD}$	$\sqrt{18}$	$-\frac{2}{3}$

ALL names it can be called

Parallelogram
Rhombus

BEST Name to call it:

Rhombus

Names it CAN NOT be called.

Rectangle
Kite
Square
Trapezoid

III. Now write a ***paragraph proof*** explaining what quadrilaterals it can be with the reasons why AND what it can't be with the reasons why. Also identify the best name possible.

17. Quadrilateral ABCD from problem #14.

18. Quadrilateral MATH from problems #15.

19. Quadrilateral ABCD from problem #16.

Did your paragraphs include all the figures in it?

IV. Find the Distance, Midpoint, AND Slope for the following problems. SHOW all work!

20. A(4, 6) and B(-5, 9)

21. P(-10, 8) and Q(2, -12)

V. Answer the following questions.

22. Given the equation $4x - 6y = 12$ what would be the slope of a line that is PERPENDICULAR to this line?

23. Write a different equation that would be parallel to the equation in #22.

(20) Distance

$\overline{AB} = \sqrt{(4--5)^2+(6-9)^2}$

$= \sqrt{(9)^2+(-3)^2}$

$= \sqrt{81+9}$

$= \sqrt{90}$

$= 3\sqrt{10}$

90 ^ 9·10

Midpoint

$\overline{AB} = \left(\frac{4+-5}{2}, \frac{6+9}{2}\right)$

$= \left(-\frac{1}{2}, \frac{15}{2}\right)$

Slope

$\overline{AB} = \frac{9-6}{-5-4}$

$= \frac{3}{-9}$

$= -\frac{1}{3}$

(21) Distance

$\overline{PQ} = \sqrt{(-10-2)^2+(8--12)^2}$

$= \sqrt{(-12)^2+(20)^2}$

$= \sqrt{144+400}$

$= \sqrt{544}$

$= 4\sqrt{34}$

544 ^ 136·4 ^ 34·4 ^ 2·17

Midpoint

$\overline{PQ} = \left(\frac{-10+2}{2}, \frac{8+-12}{2}\right)$

$= \left(-\frac{8}{2}, -\frac{4}{2}\right)$

$= (-4, -2)$

Slope

$\overline{PQ} = \frac{-12-8}{2--10}$

$= \frac{-20}{12}$

$= -\frac{5}{3}$

(22) Find the slope first

$4x - 6y = 12$

$-4x \quad -4x$

$\frac{-6y}{-6} = \frac{12}{-6} - \frac{4x}{-6}$

$y = -2 + \frac{2}{3}x$

Perpendicular slope to $\frac{2}{3}$ is $\boxed{-\frac{3}{2}}$.

(23) Any equation that has a slope of $-\frac{3}{2}$ will work.

$y = -\frac{3}{2}x - 2$

or

$y = -\frac{3}{2}x + 12$